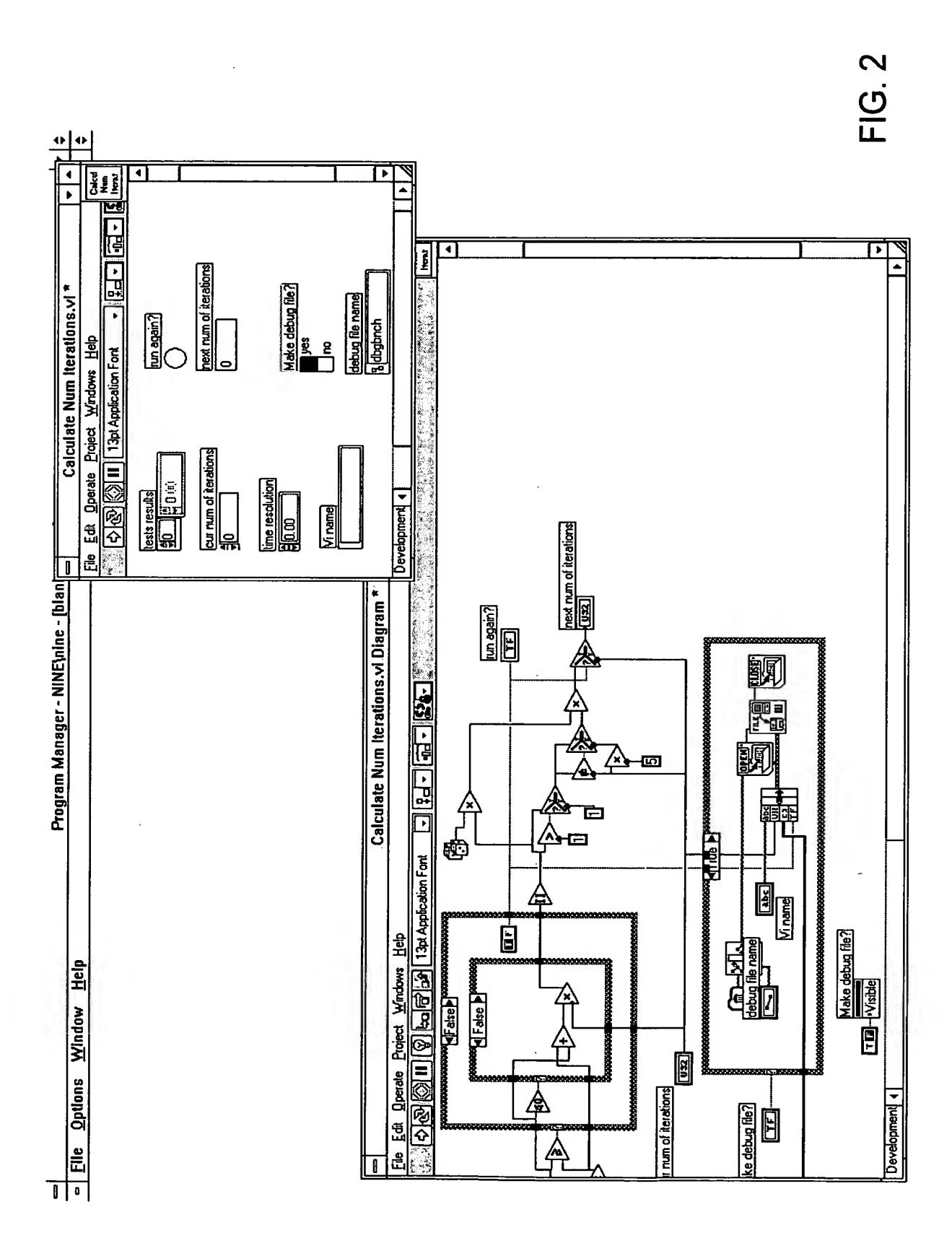
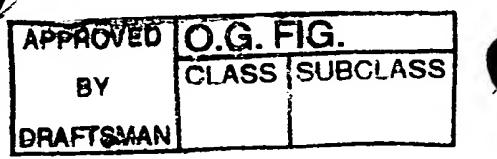
FIG.

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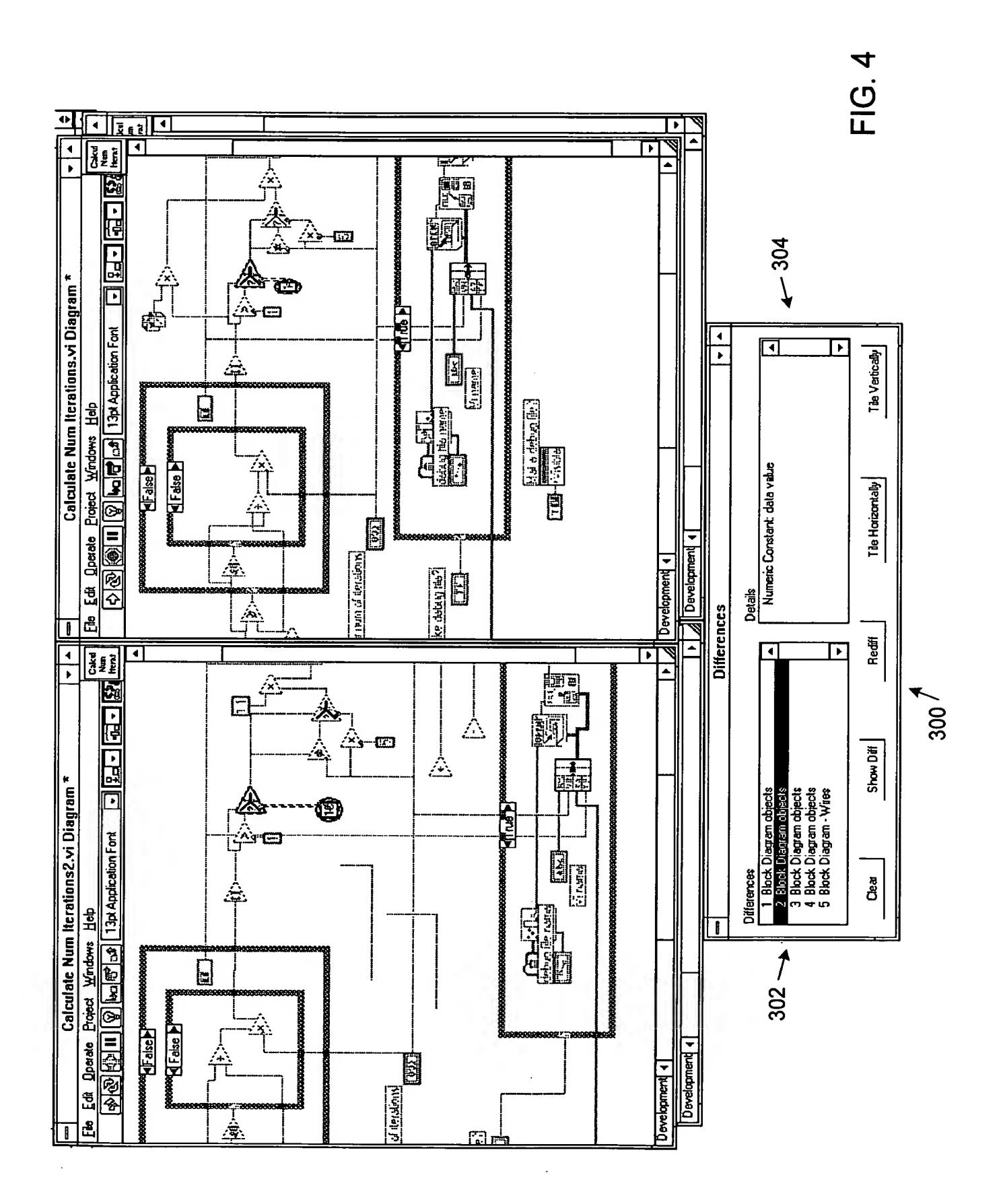


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Receive as input two graphical programs; the graphical programs comprise attributes and a plurality of objects arranged as a block diagram and a user interface panel 100 Create a graph representing the block diagram and a graph representing the front panel for each of the two graphical programs <u>102</u> Match objects of the first graphical program with objects of the second graphical program Determine differences between the block diagrams of the first and second graphical programs 106 Determine differences between the user interface panels of the first and second graphical programs <u> 108</u> Determine differences between the attributes of the first and second graphical programs <u>110</u> Display the differences between the first graphical program and the second graphical program <u>112</u>

FIG. 3

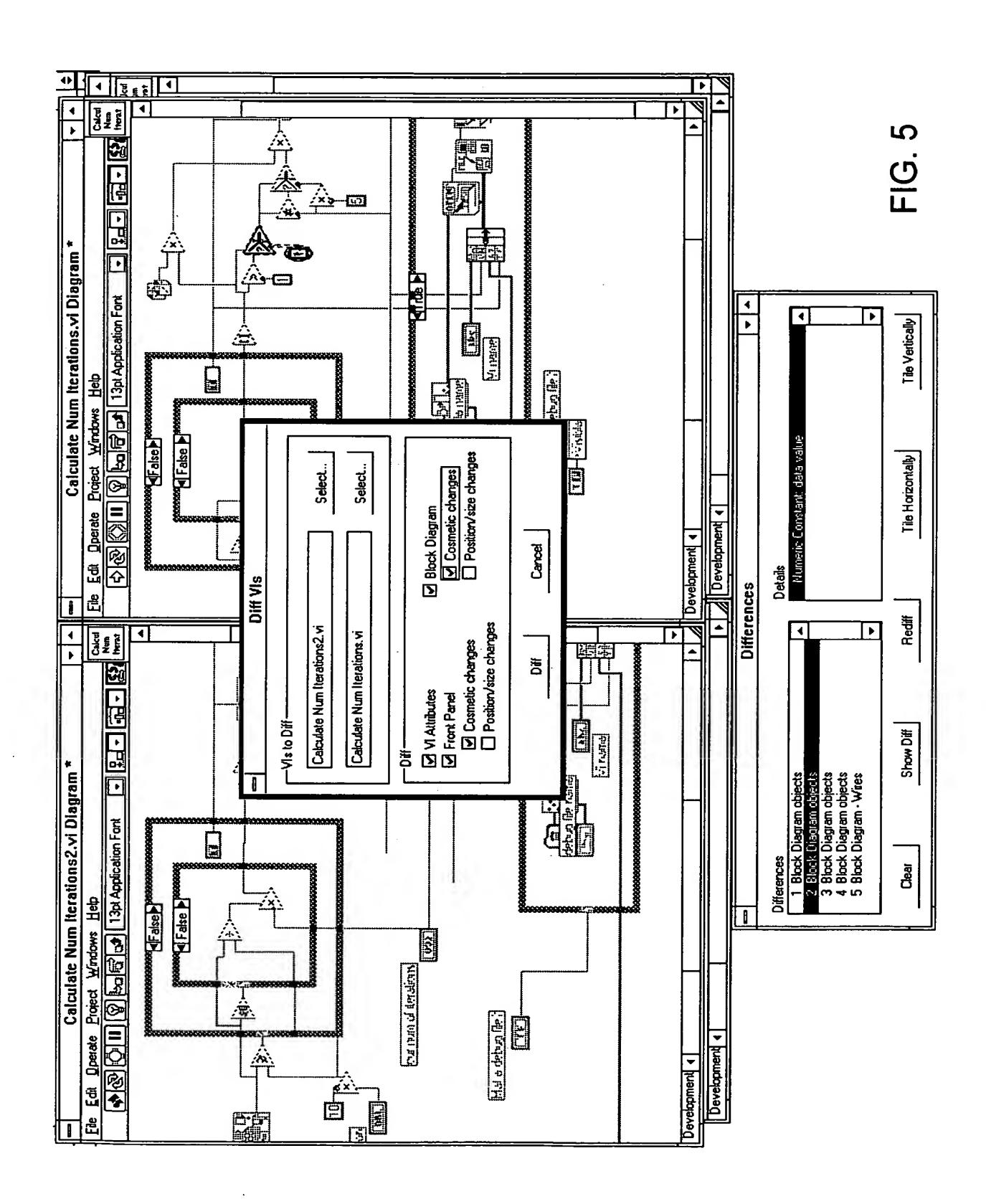
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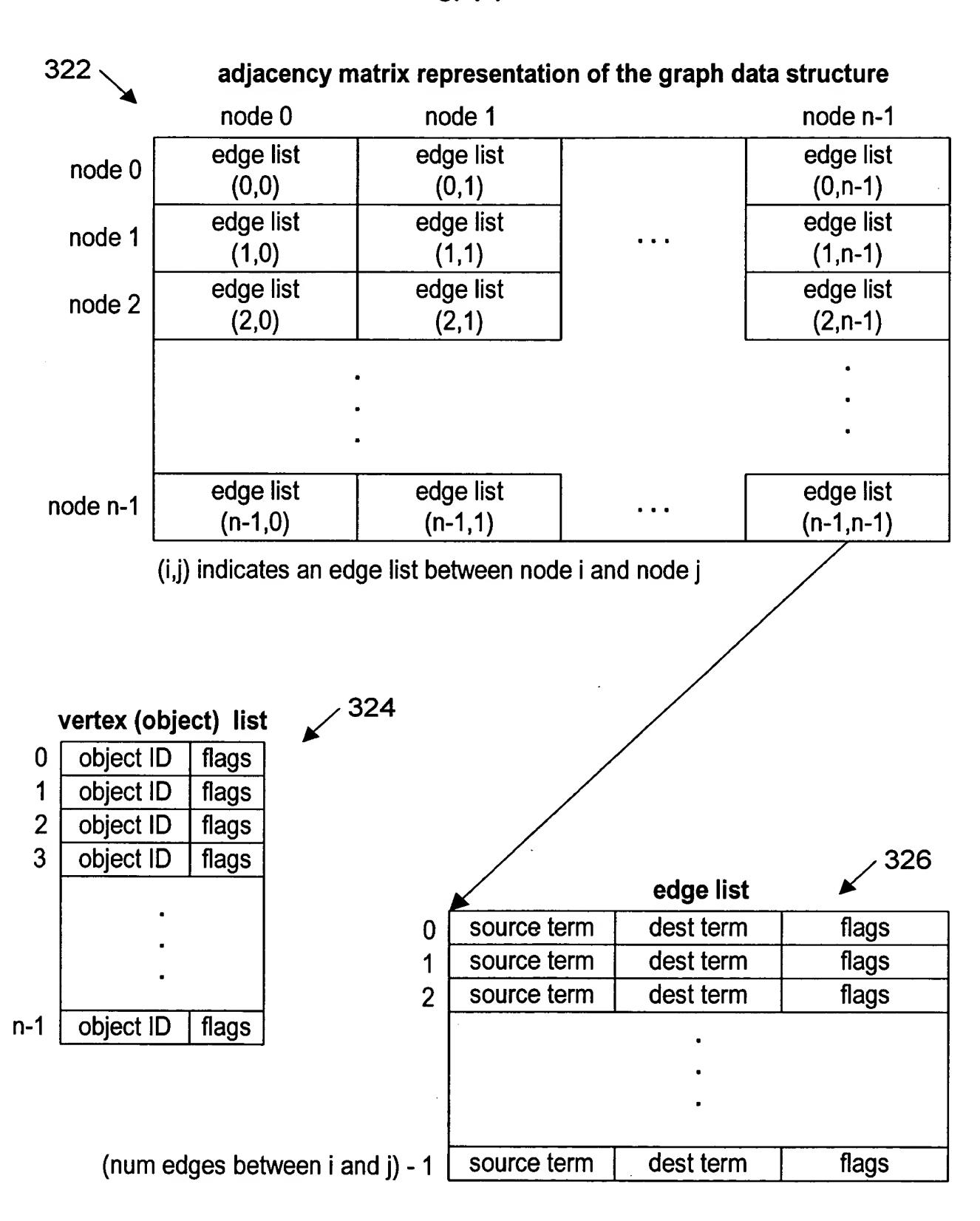


FIG. 6

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n x m matrix list

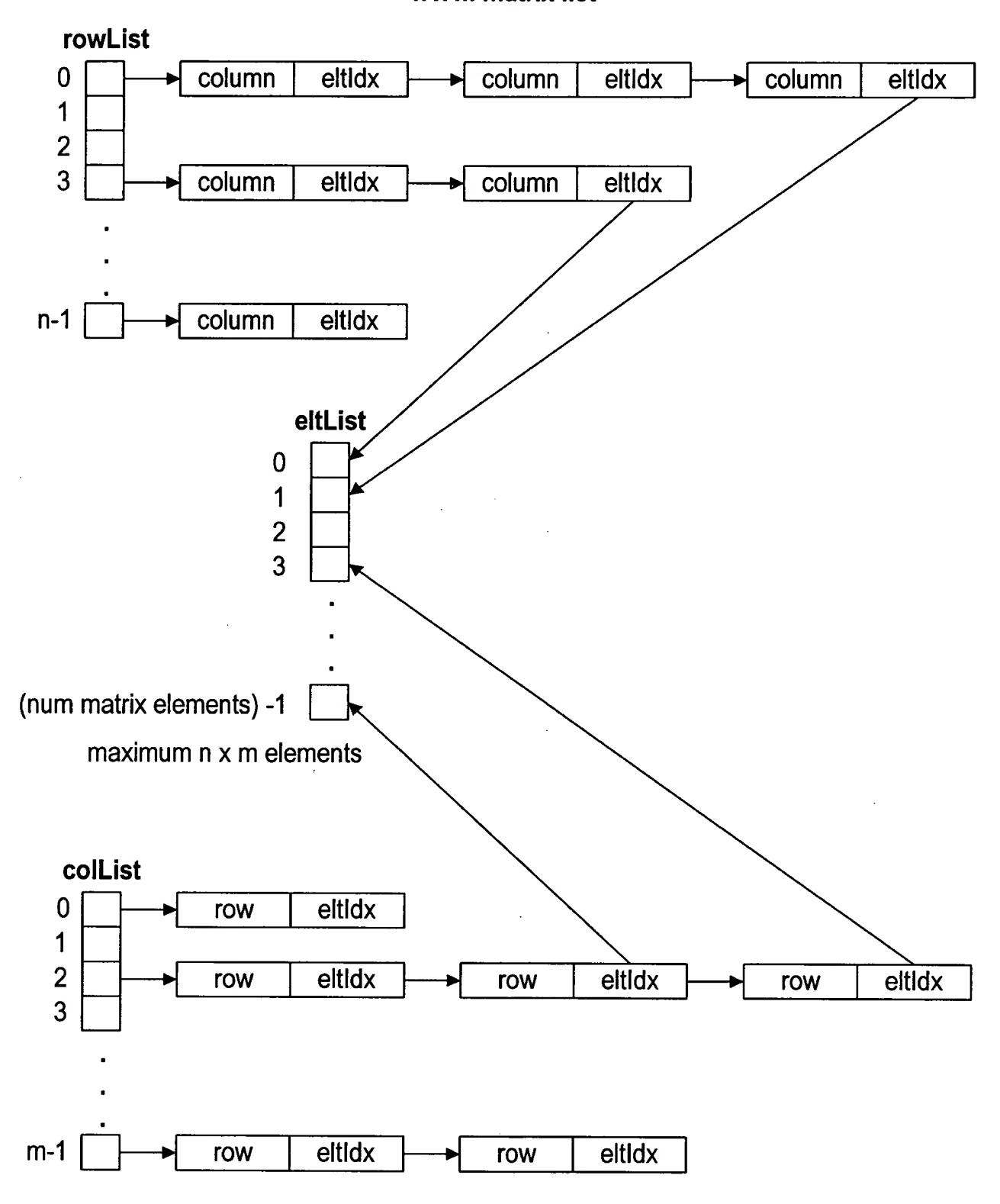


FIG. 7

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APPROVED O.G. FIG.

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Match objects of the first graphical program with objects of the second graphical program

104

Create a match matrix between the first and second graphical programs

Score objects which match according to object type and which have no match conflicts with other objects according to object type

Using matching objects found in step 122, traverse graph and increase score of source and destination object of each matching edge; resolve match matrix scores

Score unmatched objects according to object type only; resolve match matrix scores

126

Score remaining conflicts by examining immediate neighbor objects; resolve match matrix scores

128

Score remaining conflicts by object attributes; resolve match matrix scores

130

Score remaining conflicts by object position and size; resolve match matrix scores with tie breaks

132

FIG. 8

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n x m match matrix

	object 0	object 1		object m-1
object 0	match info (0,0)	match info (0,1)		match info (0,m-1)
object 1	match info (1,0)	match info (1,1)		match info (1,m-1)
object 2	match info (2,0)	match info (2,1)		match info (2,m-1)
	•	•		•
		•		•
object n-1	match info (n-1,0)	match info (n-1,1)	• • •	match info (n-1,m-1)

match info (i,j)

score flags

FIG. 9

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Determine differences between the block diagrams of the first and second graphical programs <u> 106</u> Group exact matching objects into a list of exact matching subgraphs using the match matrix information of step 104 140 Group remaining objects into a list of non-exact matching subgraphs using the list of exact matching subgraphs Match the lists of non-exact matching subgraphs using a match matrix by computing scores based upon matching nodes in match matrix of step 104 Merge the two lists of non-exact matching subgraphs using the match matrix of step 144 to produce a composite non-exact matching subgraph <u>146</u> Store non-exact matching subgraphs in a results data structure <u>148</u> Compare matching objects in the non-exact matching subgraphs to determine additional differences 150 Store the additional differences in the result data structure <u>152</u>

FIG. 10

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Determine differences between the user interface panels of the first and second graphical programs 108 Compare matching top-level objects to determine differences <u>160</u> Compare low-level objects to determine differences <u>162</u> Determine differences of objects which have no match <u>164</u> Store differences found in steps 160, 162 and 164 <u>166</u>

FIG. 11